

REMARKS

The Official Action of March 8, 2006 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Claim 1 has been amended with incorporation of the recitations formerly in claim 5 (now canceled). Claim 1 has also been amended with the use of "means plus function" terminology to cover the vibration module described in the specification as filed at, for example, page 8, lines 18-25 and Fig. 1 of the drawings. In accordance with the provisions of 35 USC 112, sixth paragraph, the recited vibration means covers the structure described in the specification for performing the recited function and equivalents thereof. Applicants respectfully note in this respect that the described vibrating means cause a **mechanical** back and forth movement of the substrate to achieve the desired effect (see, also, dictionary definition of "vibrate" submitted herewith).

Claim 1 has further been amended to include magnetic force means for removing the magnetic beads from the reaction solution in accordance with the disclosure in the specification at, for example, page 8, first paragraph, and the paragraph bridging pages 13-14 ("The magnetic beads were isolated with a magnet. . ."). New claims 33 and 34 have been added more completely to define the subject matter which Applicants regard as their invention. The recitations in claim 33 draw clear support from the specification as filed at, for example, page 7, lines 22-24. The recitations in claim 34 draw clear support

from the specification at page 14, line 2.

Applicants hereby affirm their election to prosecute in the present application the claims of Group I directed to the micro-assay system. The non-elected method claims have now been amended to depend from the elected claims to the system. In accordance with the provisions of MPEP 821.04, Applicants respectfully request rejoinder of the method claims upon the allowance of the claims to the system from which the method claims depend.

The claims stand rejected under 35 USC 102(e) as allegedly being anticipated by Martin et al or under 35 USC 103(a) as allegedly being unpatentable over Martin et al in view of ONeill et al or Becker et al or Montagu. Applicants respectfully traverse these rejections.

The invention as defined in the claims as amended distinguishes from the cited references in at least three (3) features, which are not shown or suggested by the references. These are discussed next.

(1) Magnetic micro-beads/magnetic force means

The magnetic micro-beads according to the invention are provided for attaching the biomolecules and are convenient for isolation thereafter by a magnetic force. See page 8 of the specification: "[A]s used herein, the term "micro-bead" refers to a small bead of which a surface can be attached to

biomolecules or can be attached after an appropriate activation. Preferably, the micro-beads can be isolated from the reaction solution easily for the purpose of isolating the biomolecules immobilized thereon from the reaction solution.”

In contrast, the bead according to Martin et al is one embodiment of the solid support. Although paragraph [0130] discloses that a magnetic material can be used as the solid support, the magnetic solid support is used for being heated by microwave, not for isolation by a magnetic force. Moreover, in Martin, et al the electric field and the magnetic field must coexist in the “electromagnetic field.” Significantly, the strength of the “electromagnetic field” for generating microwave in Martin et al and the strength of the “magnetic field” sufficient to remove the magnetic micro-beads from the reaction solution according to the invention as claimed are quite different. For example, if the electromagnetic field in ‘Martin et al were strong enough to remove the solid support from the reaction solution, the solid support would be attached to the microwave generator and fail to carry on the reaction by microwave. In other words, the electromagnetic field described in Martin et al cannot carry out the function specified in the claims and cannot be used to set forth a *prima facie* case of equivalence of the claimed means for this reason alone (see MPEP 2183).

(2) Vibrating means:

Through shaking the substrate by the vibrating means, the reaction solution and magnetic micro-beads are shaken for reacting evenly. See page 8, third paragraph: “[A]s is used herein, the term “vibrating module” refers to an

apparatus for vibrating the substrate to make the micro-beads in the micro-wells react evenly in the reaction solution.” In contrast, Martin et al use a solid support made of a piezoelectric material (paragraph [0093]) for vibrating the solid support in the presence of the electromagnetic field. The vibrating according to the piezoelectric property is quite different from the mechanical shaking required by the claimed means.

In this respect, the Examiner’s attention is respectfully drawn to the provisions of MPEP 2182, which provide that, in construing the claimed vibration means, the examiner carries the initial burden of proof for showing that the prior art structure is the same as or equivalent to the structure described in the specification which has been identified as corresponding to the claimed means. However, in the present case, the prior art structure does not effect a mechanical back and forth movement of the recited substrate and is not the same as or equivalent to the structure described in the specification as corresponding to the claimed means. Accordingly, Martin et al cannot be said to show this claim limitation.

(3) Substrate:

The substrate according to the claimed invention comprises a plurality of micro-wells. See page 7, last paragraph of the specification: “[A]s used herein, the term “a substrate” refers to a support containing a plurality of micro-wells and can be set up with a temperature control module and a vibrating module.” In order to form the micro-wells and support other components: “[T]he material of

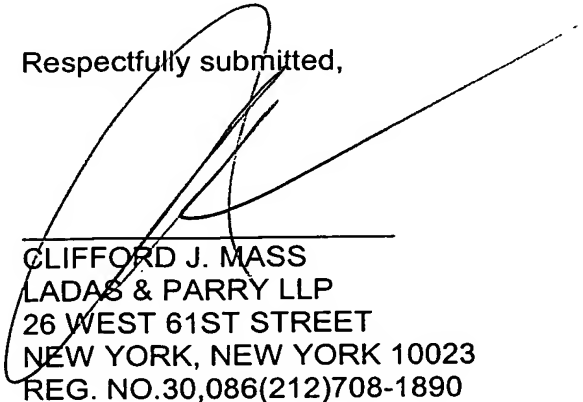
the substrate is biologically inert with respect to the biomolecules according to the invention."

In contrast, the "solid support" as described in Martin et al is covalently or non-covalently attached to the biological molecules. Furthermore, the material of the solid support should be able to be heated by microwave. See paragraph [0033] of Martin et al: "[T]he reactions preferably occur on solid phases or surfaces (hereinafter collectively referred to as "solid supports"). Suitable solid supports preferably contain: a dielectric (microwave absorbing material and a reactant surface on which one or more biological molecules are covalently or non-covalently attached."

In short, the cited primary reference, Martin et al, does not show or suggest all of the limitations in the claims as amended. Moreover, the cited secondary references cannot supplement the primary reference in these respects. Accordingly, it is respectfully submitted that the cited art cannot be used to set forth even a *prima facie* case of anticipation or obviousness for the invention as claimed.

In view of the above, Applicants respectfully submit that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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